ABSTRACT

(Object): There are provided (1) an optically active α-amino acid derivative, a stereoselectively useful intermediate for the synthesis of pharmaceutical or agrochemical products, which derivative is an optically active quaternary ammonium salt that, when used as an axially chiral spiro phase-transfer catalyst in the asymmetric alkylation of a glycine derivative, gives a high stereoselectivity toward substrates having a small molecule such as methyl iodide, or secondary alkyl halides, and a method for producing the same; and (2) a novel optically active quaternary ammonium salt that is a high performance axially chiral spiro phase-transfer catalyst used in the asymmetric alkylation of a glycine derivative, and in which each ring of the spiro-structure has the same structure that is advantageous in terms of the number of steps involved in the synthesis of the catalyst, and a method for producing the same and a method for recovering the same.

(Solving means): To achieve the objects, (1) an axially chiral spiro-ammonium salt that incorporates an alkyl- or aryl-substituted silyl group as a substituent on the aromatic ring is used as a phase-transfer catalyst in the asymmetric alkylation of a glycine derivative, and (2) an axially chiral spiro-ammonium slat that incorporates a substituent encompassing a perfluoro alkyl group is used in the asymmetric

alkylation of a glycine derivative and thereafter is recovered using a fluorous solvent.